(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to the substrate.

Please add the following new claims:

--21. In a chemical mechanical polishing device for planarizing a film on a substrate, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) a rotating fiber-optic cable with two ends,

(iii) a light source,

(iv) means for analyzing a light signal based on interferometry or spectrophotometry, and

(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to either side of the substrate undergoing chemical mechanical polishing to illuminate a section of the film.

22. The chemical mechanical polishing device as claimed in claim 21, wherein the illuminated section is a dedicated measurement area.

23. In a chemical mechanical polishing device for planarizing a film on a substrate comprising a polishing table, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) a rotating fiber-optic cable with two ends,

(iii) a light source,

(iv) means for analyzing a light signal, and

(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to a side of the substrate undergoing chemical mechanical polishing, said end illuminating a section of the film of the substrate and said analyzing means measuring a light signal returning from the section.

24. The chemical mechanical polishing device as claimed in claim 23, wherein the measured light signal has at least one wavelength greater than about 200 nanometers.

25. The chemical mechanical polishing device as claimed in claim 23, wherein the measured light signal has at least one wavelength between about 200 nanometers and about 11,000 nanometers.

26. The chemical mechanical polishing device as claimed in claim 23, wherein the illuminated section is a dedicated measurement area.

27. The chemical mechanical polishing device as claimed in claim 26, wherein the dedicated measurement area is illuminated at timed intervals during rotation of the substrate and/or the polishing table.

28. In a chemical mechanical polishing device for planarizing a film on a substrate, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) a rotating fiber-optic cable with two ends,

(iii) a light source,

(iv) means for analyzing a light signal, and

(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to a side of the substrate which is not undergoing chemical mechanical polishing, said end illuminating a section of the film of the substrate and said analyzing means measuring a light signal returning from the section.

29. The chemical mechanical polishing device as claimed in claim 28, wherein the measured light signal has at least one wavelength between about 1,000 nanometers and about 11,000 nanometers.

30. The chemical mechanical polishing device as claimed in claim 28, wherein the illuminated section is a dedicated measurement area.

31. In a chemical mechanical polishing device for planarizing a film on a substrate comprising a polishing table, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) an electrical slipring,

(iii) a light source, and

(iv) means for analyzing a light signal,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected at one end to the electrical slipring,

and wherein another end of the common leg of the fiber-optic cable is held in close proximity to a side of the substrate undergoing chemical mechanical polishing, said end illuminating a section of the film of the substrate and said analyzing means analyzing a light signal returning from the section based on interferometry or spectrophotometry.

32. The chemical mechanical polishing device as claimed in claim 31, wherein the measured light signal has at least one wavelength greater than about 200 nanometers.

33. The chemical mechanical polishing device as claimed in claim 31, wherein the measured light signal has at least one wavelength between about 200 nanometers and about 11,000 nanometers.

34. The chemical mechanical polishing device as claimed in claim 31, wherein the illuminated section is a dedicated measurement area.

35. The chemical mechanical polishing device as claimed in claim 34, wherein the dedicated measurement area is illuminated at timed intervals during rotation of the substrate and/or the polishing table.

36. In a chemical mechanical polishing device for planarizing a film on a substrate, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) an electrical slipring,

(iii) a light source, and

(iv) means for analyzing a light signal,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected at one end to the electrical slipring,

and wherein another end of the common leg of the fiber-optic cable is held in close proximity to a side of the substrate which is not undergoing chemical mechanical polishing, said end illuminating a section of the film of the substrate and said analyzing means analyzing a light signal returning from the section based on interferometry or spectrophotometry.

37. The chemical mechanical polishing device as claimed in claim 36, wherein the measured light signal has at least one wavelength between about 1,000 nanometers and about 11,000 nanometers.